

# WEST Search History

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DATE: Monday, May 14, 2007

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	<i>DB=PGPB,USPT,EPAB,JPAB,DWPI; PLUR=YES; OP=ADJ</i>		
<input type="checkbox"/>	L8	p185\$ adj (monkey or rhesus or macaca or mulatta)	0
<input type="checkbox"/>	L7	L6 not l4	7
<input type="checkbox"/>	L6	l5 and (l2 or v-erbb2 or mln19)	9
	<i>DB=DWPI,JPAB,EPAB,USPT,PGPB; PLUR=YES; OP=ADJ</i>		
<input type="checkbox"/>	L5	("CILIBERTO-GENNARO".IN.   "NUZZO-MAURIZIO".IN.   "NUZZO-M".IN.   "MONACI-PAOLO".IN.   "MONACI-P".IN.   "POMEZIA".IN.   "POMEZIA-R".IN.)!	65
	<i>DB=PGPB,USPT,EPAB,JPAB,DWPI; PLUR=YES; OP=ADJ</i>		
<input type="checkbox"/>	L4	(L2 or mln19) adj15 (monkey or rhesus or macaca or mulatta)	7
<input type="checkbox"/>	L3	(L2 or mln19) adj8 (monkey or rhesus or macaca or mulatta)	7
<input type="checkbox"/>	L2	her2 or neu or verbb2 or (avian erythroblastic leukemia viral oncogene) or (neuroglioblastoma derived oncogene) or ngl or (cerb b2) or (c-erbb2) or (verbb2) or (avian erythroblastic leukemia viral) or tkr1 or (cerb-b2) or herstatin	15852
	<i>DB=USPT; PLUR=YES; OP=ADJ</i>		
<input type="checkbox"/>	L1	her2 or neu or verbb2 or (avian erythroblastic leukemia viral oncogene) or (neuroglioblastoma derived oncogene) or ngl or (cerb b2) or (c-erbb2) or (verbb2) or (avian erythroblastic leukemia viral) or tkr1 or (cerb-b2) or herstatin	6754

END OF SEARCH HISTORY

(FILE 'HOME' ENTERED AT 13:44:08 ON 14 MAY 2007)

FILE 'MEDLINE, CAPLUS, EMBASE' ENTERED AT 13:44:30 ON 14 MAY 2007

FILE 'MEDLINE, CAPLUS, EMBASE' ENTERED AT 13:44:44 ON 14 MAY 2007

L1 24928 S 2 HER2 OR NEU OR VERBB2 OR (AVIAN ERYTHROBLASTIC LEUKEMIA VIR  
L2 9 S L1 (15A) (MONKEY OR MACACA OR RHESUS OR MULATTA)  
L3 5 DUP REM L2 (4 DUPLICATES REMOVED)

=>

## Gene Search Result For her2

Search her2 for species  
Search her2 among product webpages

**Human**

Mouse

Rat

Others

**ERBB2**   antibody   siRNA   ELISA   recombinant protein   cDNA clone

*synonyms:* **her2 neu; her2;** verbb2 avian erythroblastic leukemia viral oncogene homolog 2 neuro glioblastoma derived oncogene homolog; ngl; cerb b2; verbb2 avian erythroblastic leukemia viral oncog; tkr1; tyrosine kinase type cell surface receptor; neu; cerb b2 neu; herstatin; neuroblastoma glioblastoma derived oncogene homolog; neuroblastoma glioblastoma derived oncogene homolo; v-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homol

**CASC4**   antibody   siRNA   cDNA clone

*synonyms:* **gene associated with her2 neu overexpression;** h63; dkfzp459f1927; mgc74708; cancer susceptibility candidate 4

 search

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
22 July 2004 (22.07.2004)

PCT

(10) International Publication Number  
**WO 2004/061105 A1**

(51) International Patent Classification<sup>7</sup>: **C12N 15/12**,  
15/861, 5/16, C07K 14/71, C12P 21/02, A61K 38/17,  
48/00

(21) International Application Number:  
PCT/EP2003/014997

(22) International Filing Date:  
29 December 2003 (29.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/437,846 3 January 2003 (03.01.2003) US

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

[Continued on next page]

(54) Title: **RHESUS HER2/NEU, NUCLEOTIDES ENCODING SAME, AND USES THEREOF**

Predicted Amino Acid Sequence of First Rhesus  
Her2/Neu Protein (SEQ ID NO:2)

```
1 MELAAWYRWG LLLALLPPGA AGTQVCTGTD MKLRLPASPE THLDMLRHLY QGCQVVQGNL
61 ELTYLPTNVS LSLQDIQEV QGYVLIHMQ VROVPLQRLR IVRGTQLFED NYALAVLDNG
121 DLLNNTTPTV GASPGGLREL QLRSLTEILK GGVLIQRNQ LCYQDTILWK DIFHKNQOLA
181 LTLIDTNRSR ACHPCSPVCK GSRGWGESSE DCQSLTRTVC AGGCARCKGP LPTDCCHEQC
241 AAGCTGPKHS DCLACLHFNH SGICELHCPA LVTYNTDTFE SMPNPEGRYT FGASCVTACP
301 YNYLSTDVGS CTLVCPHMQ EVTAEDGTQR CEKCSKPCAR VCYGLGMEHL REVRAVTSAN
361 IQEFAGCKKI FGSLAFLPES FDGDPASNTA PLOPEQLRVF ETLEEITGYL YISAWPDSL P
421 DLSVLQNLQV IRGRILHNGA YSLTLQGLGI SWLGLRSLRE LGSGLALIH NTRLCFVHTV
481 PWDQLFRNPH QALLHTANRP EDECVGEGLA CHQLCARGHC WGPBPTQCVN CSQFLRGQEC
541 VEECRVLQGL PREYVNRHIC LPCHPECQPQ NGSVTCFGPE ADQCACAHY KDPFFCVARC
601 PSGVKPDL SYMPIWKFPDEE GTCQSCPINC THSCVDLDDK GCPAEQRA SP LSTIISAVVG
661 ILLVVVLGVV FGILIKRRQQ KIRKYTMRR LQETELVEPL TPSPAMPNQA QMRILKETEL
721 RKVKVLGSGA FGTVYKGIWI PDGENVKIPV AIKVLRENTS PKANKEILDE AYVMAGVGSP
781 YVSRLLGICL TSTVQLVTQL MPYGCLLDHW RENRGLGSQ DLLNWMQIA KGMYSLEDVR
841 LVHRDLAARN VLVKSPNHVK ITDFGLARLL DIDETEYHAD GGVKPIKWA LESILRRRFT
901 HQSDVWSYGV TVWELMTFGA KPYDGI PARE IPDLLEKGER LPQPICTID VYIMVVKCMH
961 IDSECRPRFR ELVSEFSRMA RDPQRFVVIQ NEDLGPASPL DSTFYRSLLE DDDMGDLVDA
1021 EAYLVPPQGF FCPDPAAGTG GMVHHRHRS STRSGGGDLT LGLEPSEEEA PRSPRAPSEG
1081 TGSDFVGDGL GMGAAGLQGS LPAHDPSP L RYSEDPTVPL PSETDGYVAP LTCSPQPEYV
1141 NQPDVRPQPP SPQEGPLSPA RPTGATLERP KTLSPGKNGV VKDVFAGGA VENPEYLAPR
1201 GGAAPQPHLP PAFSPA FDNL YYWDOPSER GAPPSTFKGT PTAENPEYLG LOVPV*
```

(57) Abstract: Polynucleotides encoding rhesus monkey HER2/neu have been isolated, cloned and sequenced. The gene encoding the HER2/neu is commonly associated with the development of epithelial-derived human carcinomas. The present invention provides compositions and methods to elicit or enhance immunity to the protein product expressed by the HER2/neu tumor-associated antigen, wherein aberrant HER2/neu expression is associated with a carcinoma or its development. This invention specifically provides adenoviral vector constructs carrying rhHER2/neu and discloses their use in vaccines and pharmaceutical compositions for preventing and treating cancer.

WO 2004/061105 A1

# INTERNATIONAL SEARCH REPORT

Int. Application No  
PCT/E 03/14997

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/12 C12N15/861 C12N5/16 C07K14/71 C12P21/02  
A61K38/17 A61K48/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, SEQUENCE SEARCH, BIOSIS, MEDLINE, EMBASE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 02/14503 A (HAND ZIMMERMANN SUSAN ;CORIXA CORP (US); FOY TERESA M (US); KALOS) 21 February 2002 (2002-02-21) page 3, line 1 -page 6, line 9 page 9, line 14 -page 14, line 10 page 38, line 12 -page 41, line 4 page 56, line 22 -page 83, line 29; example 1 Sequence Listing: SEQ ID NOs: 1 and 2	1-20
Y	WO 02/13847 A (HAND ZIMMERMANN SUSAN ;CORIXA CORP (US); CHEEVER MARTIN A (US); GA) 21 February 2002 (2002-02-21) page 2, line 9 -page 4, line 13 page 6, line 4 -page 17, line 11 page 23, line 15 -page 34, line 3 Sequence Listing: SEQ ID NOs: 1 and 2 -/-	1-20

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*Z\* document member of the same patent family

Date of the actual completion of the international search

27 May 2004

Date of mailing of the international search report

04/06/2004

Name and mailing address of the ISA

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Authorized officer

Donath, C

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/03/14997

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 869 445 A (DISIS MARY L ET AL) 9 February 1999 (1999-02-09) column 2, line 25 -column 3, line 12 column 6, line 27 - line 53; example 4 Sequence Listing: SEQ ID NOs: 1 and 2	1-20
A	FENDLY B M ET AL: "SUCCESSFUL IMMUNIZATION OF RHESUS MONKEYS WITH THE EXTRACELLULAR DOMAIN OF P185HER2: A POTENTIAL APPROACH TO HUMAN BREAST CANCER" VACCINE RESEARCH, MARY ANN LIEBERT, INC., PUBLISHERS, US, vol. 2, no. 3, 1993, pages 129-139, XP009030428 abstract	1-20
A	DISIS M L ET AL: "HER-2/NEU PROTEIN: A TARGET FOR ANTIGEN-SPECIFIC IMMUNOTHERAPY OF HUMAN CANCER" ADVANCES IN CANCER RESEARCH, ACADEMIC PRESS, LONDON, GB, vol. 71, 1991, pages 343-371, XP000982776 ISSN: 0065-230X the whole document	1-20
A	HUNG M-C ET AL: "HER-2/NEU-TARGETING GENE THERAPY - A REVIEW" GENE, ELSEVIER BIOMEDICAL PRESS. AMSTERDAM, NL, vol. 159, no. 2, 1995, pages 65-71, XP002057855 ISSN: 0378-1119 the whole document	1-20

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/EP 03/14997

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
  
Although claims 8-11 and 14-20 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

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L4: Entry 2 of 7

File: PGPB

Oct 12, 2006

PGPUB-DOCUMENT-NUMBER: 20060228335

PGPUB-FILING-TYPE:

DOCUMENT-IDENTIFIER: US 20060228335 A1

TITLE: Rhesus carcino embryonic antigen, nucleotides encoding same, and uses thereof

PUBLICATION-DATE: October 12, 2006

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Aurisicchio; Luigi	Rahway	NJ	US
Palombo; Fabio	Rome		IT
Monaci; Paolo	Roma		IT
La Monica; Nicola	Rome		IT
Ciliberto; Gennaro	Rome		IT
Lahm; Armin	Rome		IT

APPL-NO: 10/545515 [PALM]

DATE FILED: February 9, 2004

## RELATED-US-APPL-DATA:

us-provisional-application US 60447203 20030213

## PCT-DATA:

DATE-FILED	APPL-NO	PUB-NO	PUB-DATE	371-DATE
Feb 9, 2004	PCT/EP04/01181			Aug 15, 2005

## INT-CL-PUBLISHED:

TYPE	IPC	DATE	IPC-OLD
IPCP	A61K48/00	20060101	A61K048/00
IPCS	C07H21/04	20060101	C07H021/04
IPCS	C12P21/06	20060101	C12P021/06
IPCS	C07K14/82	20060101	C07K014/82
IPCS	C12N5/06	20060101	C12N005/06

## INT-CL-CURRENT:

TYPE	IPC	DATE
CIPP	<u>A61</u> <u>K</u> <u>48/00</u>	20060101
CIPS	<u>C07</u> <u>H</u> <u>21/04</u>	20060101
CIPS	<u>C07</u> <u>K</u> <u>14/82</u>	20060101
CIPS	<u>C12</u> <u>N</u> <u>5/06</u>	20060101
CIPS	<u>C12</u> <u>P</u> <u>21/06</u>	20060101

US-CL-PUBLISHED: 424/093.2; 514/044, 435/069.1, 435/320.1, 435/362, 530/350, 536/023.5

US-CL-CURRENT: 424/93.2; 435/320.1, 435/362, 435/69.1, 514/44, 530/350, 536/23.5

ABSTRACT:



DNAs encoding rhesus monkey carcinoembryonic antigen (rhCEA) have been isolated, cloned and sequenced. The gene encoding CEA is commonly associated with the development of human carcinomas. The present invention provides compositions and methods to elicit or enhance immunity to the protein product expressed by the CEA tumor-associated antigen, wherein aberrant CEA expression is associated with a carcinoma or its development. This invention specifically provides adenoviral vector constructs carrying rhCEA and discloses their use in vaccines and pharmaceutical compositions for preventing and treating cancer.

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DOCUMENT-IDENTIFIER: US 20060228335 A1  
TITLE: Rhesus carcino embryonic antigen, nucleotides encoding same, and uses thereof

Description of Disclosure:

[0129] The same group of animals was boosted by injection of a mixture of three Ad5-expressing rhesus CEA (Ad5-rhCEA), rhesus HER2/neu (Ad5-rhHER2), and rhesus EpCAM (Ad5-rhEpCAM). A total amount of 3.times.10exp11 viral particles (vp), were injected i.m. at weeks 23 and 27 (1.times.10exp11 vp for each of the three viruses).

Description of Disclosure:

[0133] The cell mediated response was measured by IFN.gamma. ELISPOT assay. For Her2/Neu, three out of four monkeys showed a detectable response. No significant cell mediated responses were measured for rhCEA and rhEpCAM.

Description of Disclosure:

[0134] In summary, the immunization protocol discussed above was effective in inducing a specific immune response against rhHER2/neu in rhesus monkeys. It is unclear why co-immunization with vectors carrying three different tumour antigens was not effective in inducing an immune response against rhCEA, as compared to study 1, which used only rhCEA as immunogen. Though not wishing to be bound by theory, it is possible that the expression of rhHER2/Neu and the presence of immunodominant epitopes limited the generation and the expansion of subdominant rhCEA specific T-cells.



Qy	961	IDSECRPRFRELVSEFSRMARDPQRFVVIQNE	DLGPASPLDSTFYRSLEDDDMGDLVDA	1020
Db	961	IDSECRPRFRELVSEFSRMARDPQRFVVIQNE	DLGPASPLDSTFYRSLEDDDMGDLVDA	1020
Qy	1021	EEYLVPQQGFFCPDPAPGTGGMVHHRHRSSTR	SGGGDLTLGLEPSEEEAPRSPRAPSEG	1080
Db	1021	EEYLVPQQGFFCPDPAPGTGGMVHHRHRSSTR	SGGGDLTLGLEPSEEEAPRSPXAPSEG	1080
Qy	1081	TGSDVFDGDLGMGAAKGLQSLPAHDPSPLQRY	SEDPTVPLPSETDGYVAPLTCSPQPEYV	1140
Db	1081	TGSDVFDGDLGMGAAKGLQSLPAHDPSPLQRY	SEDPTVPLPSETDGYVAPLTCSPQPEYV	1140
Qy	1141	NQPDVRPQPPSPQEGPLSPARPTGATLERPKTL	SPGKNGVVKDVFAFGGAVENPEYLAPR	1200
Db	1141	NQPDVRPQPPSPQEGPLSPARPTGATLERPKTL	SPGKNGVVKDVFAFGGAVENPEYLAPR	1200
Qy	1201	GGAAPQPHLPPAFSPAFDNLYYWDQDPSE	RGAPPSTFKGTPTAENPEYLGLDVPV	1255
Db	1201	GGAAPQPHLPPAFSPAFDNLYYWDQDPSE	RGAPPSTFKGTPTAENPEYLGLDVPV	1255

<!--EndFragment-->